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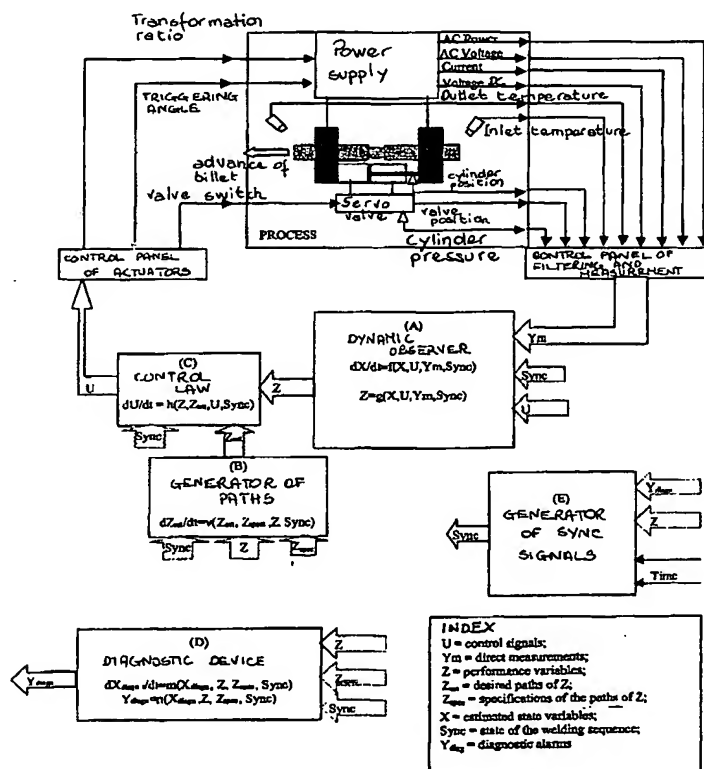
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(54) Title: SYSTEM AND METHOD FOR SELF-ADAPTIVE ON-LINE CONTROL OF A FLASH-BUTT-WELDING MACHINE



(57) Abstract: A butt-welding control system for bars, blooms, or billets controls the welding operation by acting on an actuator (U) for opening the valve for controlling positioning of the clamps of the welding machine and on the partializer, on the basis of the operation of an observer (A) of dynamic state that observes state variables (X) of the welding process; a dynamic path generator (B) for performance variables (Z), which defines pre-determined optimal paths ( $Z_{set}$ ) for the performance variables (Z) to follow; a dynamic control law (C), based upon values of performance variables (Z) and of the optimal paths ( $Z_{set}$ ), designed to control the valve for positioning the clamps (U) and the partializer on the basis of the value of the performance variables (Z) and of the desired paths; and a generator (E) of sync signals designed to generate sync signals (Sync) for the observer (A), the dynamic path generator (B) and the dynamic control law (C).



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